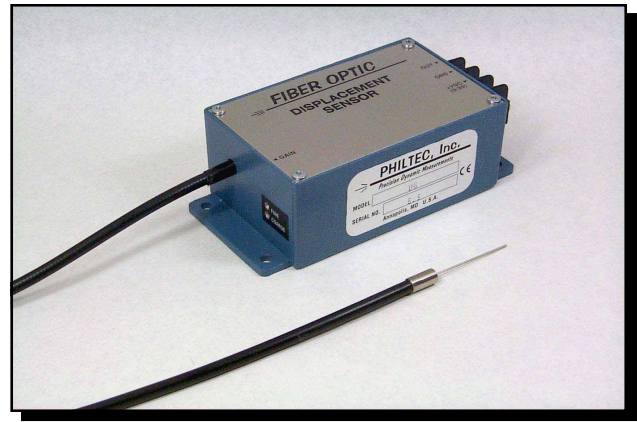
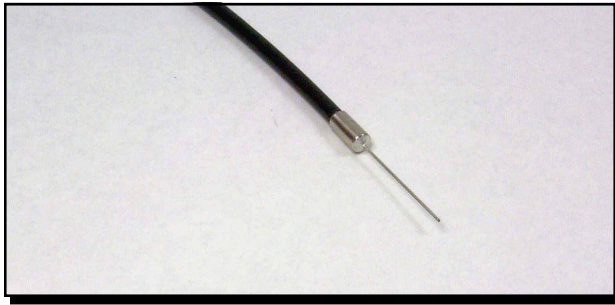


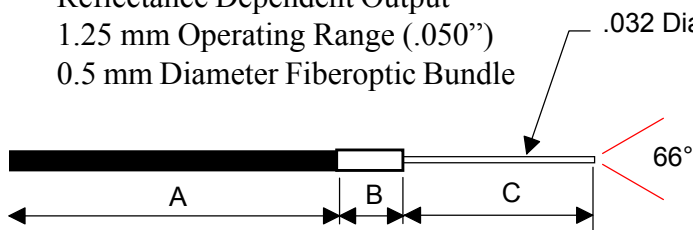
Model D20



Non-Contact Fiber Optic Displacement Sensor

Features

- Reflectance Dependent Output
- 1.25 mm Operating Range (.050")
- 0.5 mm Diameter Fiber Optic Bundle



FEATURE	DIMENSION	INCH	MM
Fiber Bundle Diameter	E	0.020	0.51
Tip Outer Diameter	D	0.032	0.813
Tip Length	C	1.5	38.1
Collar Length	B	0.5	12.7
Collar Diameter	B Dia.	0.25	6.35
Cable Length	A	36	914
Cable Diameter	A Dia.	0.205	5.2
Cable Minimum Bend Radius		0.5	12.7

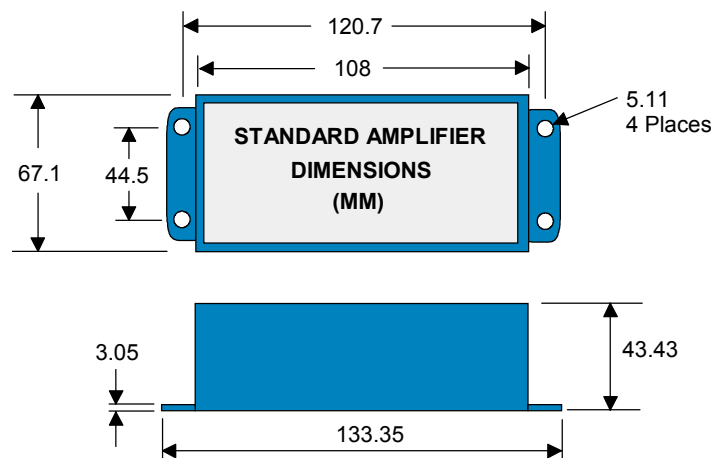
Note: Target Spot Size = Fiber Bundle Diameter

Standard off-the-shelf hardware is provided with dimensioning shown.

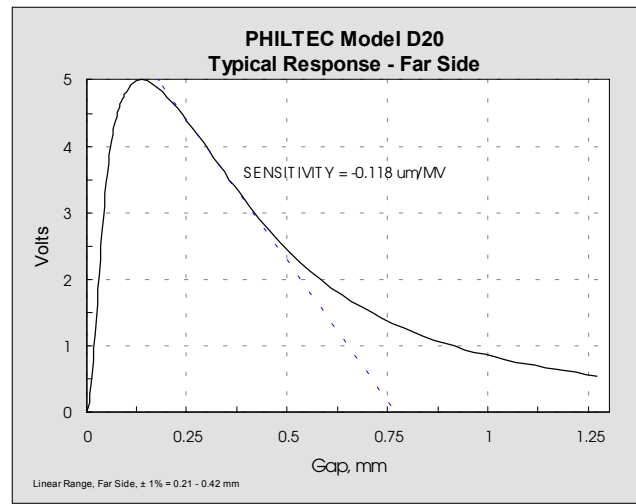
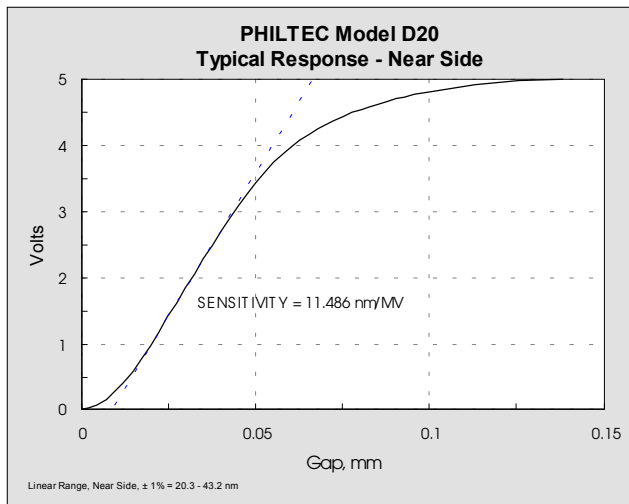
Custom hardware is encouraged to suit an application's requirements. Many variations are possible.

Contact the factory for design assistance: designhelp@philtec.com

DESCRIPTION. Bundled glass fibers transmit and receive light reflected from target surfaces. The intensity of the reflected light is processed to provide a reflectance dependent voltage output. Standard units include the fiber optic cable, sensor tip and amplifier providing 0 - 5 volt analog outputs with DC - 20 KHz bandwidth. The amplifier requires user supplied DC power. The electronics and fiber optic cable are set into the amplifier housing with an epoxy potting compound to provide a rugged and inert device.



PHILTEC



Conversions: 1 mil = .001 inch = 25.4 microns = .0254 mm 1 mm = 39.4 mils 1 micron = 39.4 microinch

Standard Specifications

Amplifier		Fiber Optics		Sensor		
Light Source	LED, 880 nm	Tip Light Beam Spread	66 degrees	Total Range	50 mils	1.27 mm
Input Voltage	+12 to +30 VDC unregulated	Cable Sheathing Material	PVC Over Steel Monocoil Wrap	Far Side Linear Range	10 mils	0.25 mm
Input Current	125 ma maximum	Tip Housing Material	300 series stls stl	Near Side Linear Range	0.75 mil	0.02 mm
Analog Output Voltage	0 to + 5 VDC	Tip Epoxy Outgas	0.3% @ 200°C 1 hr; 2.4% @ 300°C	Distance To Middle of Linear Range - Far Side	12 mils	0.28 mm
Analog Output Current	5 ma max	Tip Operating Pressure	500 psig	Distance To Middle of Linear Range - Near Side	3 mils	0.08 mm
Frequency Response	DC - 20 KHz (3 db down)	Tip Operating Temperature	-55 to 175°C Continuous to 350°C intermittent 1-2 hrs	Optical Peak	5 mils	0.13 mm
Electronic Drift	<0.1% Full Scale (5 mv)	Cable Operating Temperature	10 to 107°C	Far Side Sensitivity	5 μ m/MV	130 nm/MV
Operating Temperature	0 to 70°C			Near Side Sensitivity	0.4 μ m/MV	10 nm/MV
Weight	0.60 kg (1.3 lbs)			Noise Ripple @ 3.5 VDC In Passband DC - 20 KHz	2.5 mv pk-pk	

Resolutions (in the linear ranges)

	Near Side		Far Side	
	μ inch	μ m	μ inch	μ m
DC - 100 Hz	0.05	0.0013	.75	0.02
DC - 20 KHz (Standard)	1.0	0.025	14	0.35
DC - 200 KHz	4.0	0.1	55	1.4

RESOLUTION

- Sensitivity** is measured in units of micron/millivolt.
- Noise Ripple** is defined as the pk-pk amplitude (millivolts) of sensor noise, in the time domain, over the sensor frequency passband; i.e., from DC - 20 KHz (standard).
- Resolution (microns) = Sensitivity x Noise Ripple**

Noise Ripple is proportional to the square root of the sensor DC Output Voltage. For D model sensors, Noise Ripple is measured at 3.5 VDC. Noise ripple can be minimized in any application by operating the sensor at as low a DC voltage level as possible.

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